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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,516	10/17/2003	Chia-Yang Chang	250506-1010	2007

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EXAMINER

NGUYEN, MINH T

ART UNIT PAPER NUMBER

2816

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/688,516

Applicant(s)

CHANG ET AL.

Examiner

Minh Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 May 2005.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-18,20-22 and 24-26 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 14-17 is/are rejected.  
7) ☒ Claim(s) 18,20-22 and 24-26 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/12/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

1. Applicant's response to the restriction/election requirements without traverse filed on 5/26/05 is acknowledged. The following is a detailed Office action of the elected claims, i.e., claims 14-18, 20-22 and 24-26.

### ***Specification***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because (i) it is longer than 150 words, (ii) it uses words which can be implied, i.e., "comprising". Correction is required. See MPEP § 608.01(b).

### ***Drawings***

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the line connecting between the voltage regulation circuit 70 and the digital tuning circuit 80 in figure 1 to indicate that the

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digital tuning circuit 80 receives the operating voltage as recited in claim 14 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### ***Information Disclosure Statement***

4. The IDS filed on 1/12/04 has different filing date and name of the inventors. Please clarify that it is intended for this application.

#### ***Claim Objections***

5. Claims 17, 20-22 and 25 are objected to because of the following informalities:

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In claim 17, line 1, "5" should be changed to -- 14 --.

In claim 20, line 4, "the bias voltage" should be changed to -- a bias voltage --,

line 6, "the bias current" should be changed to -- corresponding bias currents --.

In claim 21, line 6, "the bias current" should be changed to -- the bias voltage --,

line 9, "plurality of current mirrors" should be changed to -- plurality of charge current mirrors --,

line 11, "plurality of current mirrors" should be changed to -- plurality of discharge current mirrors --,

line 12, "plurality of charge current mirrors" should be changed to -- plurality of discharge current mirrors --.

In claim 22, line 1, "wherein it" should be deleted.

In claim 25, line 8, "first reference frequency" should be changed to -- first frequency --, see lines 3-4 of claim 22,

lines 16-17, "second reference frequency" should be changed to -- second frequency --.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,912,595, issued to Ma et al.

Ma discloses a digital adjustable chip oscillator (figure 2, see the title), comprising:  
a voltage control oscillator (VCXO 138, column 7, line 19) for generating an oscillation signal (VO), receiving a control voltage (VTUNE) to adjust the frequency of the oscillation signal, and receiving an operating voltage (VO from the voltage regulator 132) to stabilize the frequency of the oscillation signal;

a reference voltage circuit (not shown, the circuit which generates the reference voltage VCC) generating a reference voltage (VCC);

a voltage regulation circuit (voltage regulator 132) receiving the reference voltage (VCC) and generating the operating voltage (VO);

a digital tuning circuit (CPU 130) receiving a digital code (from EE Prom 134, column 7, lines 13-22) to adjust the control voltage (VTUNE, column 7, line 21) and receiving the operating voltage (VO is also fed to the CPU 130) to stabilize the control voltage.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,912,595, issued to Ma et al.

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As per claim 15, Ma discloses an oscillator having the structure discussed in claim 14 wherein the voltage controlled oscillator 138 is implemented using crystal but he does not explicitly disclose the voltage controlled oscillator is a relaxation oscillator as called for in the claim.

The examiner takes Official Notice the fact that implementing a crystal voltage controlled oscillator is much more expensive than implementing a relaxation voltage controlled oscillator because of the cost of the crystal.

It would have been obvious to one skilled in the art at the time of the invention was made to replace the Ma's crystal voltage controlled oscillator 138 by a relaxation voltage controlled oscillator. The motivation and/or suggestion would be to reduce the overall cost of the Ma's oscillator when the Ma's oscillator is used in an application which does not require a very high stable frequency of operating which can only be provided by using crystal material.

As per claim 17, Ma discloses an oscillator having the structure discussed in claim 14 but he does not explicitly disclose a prescaler for dividing the frequency of the oscillation signal as called for in the claim.

However, as recognized by a person skilled in the art, the Ma's oscillator will be used in an application. If the application requires an oscillation signal which has an oscillation frequency lower than the frequency provided by the Ma's oscillator, reducing the frequency of the Ma's oscillation signal could obviously be done by a frequency divider (prescaler) circuit. Further, the Ma's oscillator can be used in different applications which require different frequencies if the dividing number can be adjusted.

It would have been obvious to one skilled in the art at the time of the invention was made to add a prescaler to the Ma's oscillator. The motivation and/or suggestion would be to enable the Ma's oscillator to be used in different applications which require different frequencies of the oscillator signal.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,912,595, issued to Ma et al. in view of US Patent No. 6,225,856, issued to Toth.

Ma discloses an oscillator having the structure discussed in claim 14 using a voltage regulation circuit 132 for generating an operating voltage. Ma does not explicitly disclose the voltage regulation circuit 132 is a bandgap reference voltage circuit as called for in the claim.

Toth discloses a bandgap reference voltage circuit (figure 2) for generating an operating voltage VBG. He further explicitly discloses the advantage of his bandgap reference voltage circuit is to consume little power (see the title).

It would have been obvious to one skilled in the art at the time of the invention was made to implement the Ma's voltage regulation circuit 132 using the detailed taught by Toth for the advantage discussed herein above, i.e., reducing the power consumption of the oscillator.

***Allowable Subject Matter***

9. Claims 18, 20-22 and 24-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



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Claim 18 is allowable because the prior art of record fails to disclose or suggest the inclusion of an op-amp, transistor and loop circuit in the voltage regulation circuit.

Claim 20 is allowable because the prior art of record fails to disclose or suggest the inclusion of an op-amp, transistor and loop circuit in the digital tuning circuit.

Claim 21 is allowable because the prior art of record fails to disclose or suggest the inclusion of current mirrors in the digital tuning circuit.

Claims 22 and 24-26 are allowable because the prior art of record fails to disclose or suggest the inclusion of a frequency detector, counter and controller as recited in claim 22.

10. Allowable claim 22 is generic to claim 23, claim 1 and its dependent claims.

Accordingly, the restriction requirement as to the encompassed species is hereby withdrawn and claims 1-13, 17, 23 and 45, directed to other species no longer withdrawn from consideration since all of the claims to this species depend from or otherwise include each of the limitations of an allowed generic claim. However, claims 27-44 and 46-68, directed to species II remain withdrawn from consideration since the species II shown in figure 30 does not depend upon or otherwise include all the limitations of an allowed generic claim as required by 37 CFR 1.141.

In view of the above noted withdrawal of the restriction requirement as to the linked species, applicant(s) are advised that if any claim(s) depending from or including all the limitations of the allowable generic linking claim(s) be presented in a continuation or divisional application, such claims may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once a restriction requirement is

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withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Nguyen whose telephone number is **571-272-1748**. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



6/16/05

Minh Nguyen  
Primary Examiner  
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